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[COMMITTEE PRINT]

INVESTIGATION OF THE PREPAREDNESS PROGRAM

UNIVERSITY OF MICHIGAN

NOV 23 1955

MAIN READING ROOM

THIRD REPORT

OF THE

PREPAREDNESS INVESTIGATING SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES

UNITED STATES SENATE

UNDER THE AUTHORITY OF

S. Res. 72

(84th Congress)

REVIEW OF PROCUREMENT PROGRAM
AIR FORCE PASSENGER SEATS

Printed for the use of the Committee on Armed Services

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LETTER OF SUBMITTAL

UNITED STATES SENATE,
PREPAREDNESS INVESTIGATING SUBCOMMITTEE,
October 19, 1955.

Hon. RICHARD B. RUSSELL,
Chairman, Committee on Armed Services,
United States Senate.

MY DEAR MR. CHAIRMAN: There is submitted herewith the third report of the Preparedness Investigating Subcommittee created by action of the committee on March 28, 1955, under the authority of Senate Resolution 72, 84th Congress.

This report is the first of a series dealing with various phases of procurement practices in the military departments. It is illustrative of less than desirable military procurement practices.

Specifically, manufacturers of passenger seats were asked by Military Air Transport Service to submit for test purposes sample items before it was determined by Air Force Headquarters whether or not it would allow MATS to procure such seats, which deviated from existing specifications. A number of manufacturers went to considerable expense to provide seats for testing. Although the seats of two manufacturers were designated as the most desirable, with modification, no procurement was made since authority for it was never forthcoming. This entire negotiation reflects an absence of coordination and planning which was costly to both the Government and the manufacturers.

Numerous other inquiries and investigations are being conducted by the subcommittee, the results of which will be transmitted to you as rapidly as they are completed.

Respectfully,

LYNDON B. JOHNSON,
Chairman, Preparedness Investigating Subcommittee.

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REVIEW OF PROCUREMENT PROGRAM—AIR FORCE PASSENGER SEATS

I. INTRODUCTION

There is a prevalent feeling among businessmen in the United States, particularly among the operators of small businesses, that it is difficult to transact business with the Government. The complaint is often made that it is not only costly and time-consuming, but there is little financial reward for the efforts of small business to attempt to negotiate with the Department of Defense and the military departments. In addition, small-business men who negotiate with the Defense forces often come to be filled with a sense of futility in attempting to obtain firm agreements with the services because of frustrations attendant upon long, drawn-out procurement practices.

From time to time the subcommittee has received complaints which would seem to indicate that this feeling has a substantial basis in fact. This report deals with one specific case of this kind. True, the amounts involved may seem small in contrast to other procurements running into many millions of dollars. But the amounts are important to the companies involved and the principles are important to everyone. It is presented here as an illustration of wasteful procurement practices.

In this case manufacturers were invited to submit sample aircraft seats for test according to a set of specifications provided them by an Air Force command. The manufacturers, after providing the necessary samples, learned that the specifications set out by the requesting command did not comply with established military standards, and no procurement was made. In other words, a number of small businesses were asked to expend time, effort, and money on a fruitless venture.

II. INITIATION

Since September 1952 the commanding general of the Military Air Transport Service, Andrews Air Force Base, Washington, D. C., has been convinced that there was a need for a more comfortable passenger seat in military transport aircraft. Unlike comparable commercial airlines, the passenger aircraft used by the Military Air Transport Service are generally built with heavier flooring. Because of the greater emphasis placed upon safety, passenger seats in military planes are considerably heavier and for other reasons apparently less comfortable than their commercial airline counterparts.

The opportunity for an effort to achieve the overall objective of more comfortable passenger seats for MATS transports arrived in the spring of 1954 when the seats in four C–118 aircraft assigned to the Frankfurt, Germany, flight needed replacement. Because these aircraft already had a commercial-type seat therein as well as a commer-

cial-type floor, any existing type low density (wide) commercial passenger seat could have been ultimately purchased by the Air Materiel Command, the purchasing agency of the Air Force, to be turned over to the Military Air Transport Service.

In July of 1954 the Director of Supply and Services, San Bernardino Air Materiel Area, made arrangements with six manufacturers to show their products to Headquarters MATS for the purpose of evaluation. This showing was primarily for the selection of a low density (wide) commercial seat to be recommended to Air Materiel Command in Dayton, Ohio, as a replacement for seats on the four aircraft. The said showing also included high density (narrow) seats. When the Commanding Officer of MATS saw the commercial version of a high density seat it was decided to attempt to get authority to use such seats in all C–118 and C–121 aircraft. No authority whatever existed for initiating procurement for this type seat.

In August 1954 MATS Headquarters telephoned the Office of Requirements, USAF, and requested support in order to initiate a procurement of seats somewhat equivalent to the type used in commercial aircraft. The request was for specific authority to deviate from existing Air Force military seat specifications. The reply received from the Pentagon in August referred to a ruling made by USAF Headquarters in May which ostensibly would allow the deviation to be made. The ruling referred to was as follows:

DEPARTMENT OF THE AIR FORCE,
HEADQUARTERS UNITED STATES AIR FORCE,
Washington 25, D. C., 14 May 1954.

AFMME–AC.
Subject: Cancellation of TI 2140–169A.
To: Commander, Air Materiel Command, Attn: MCM, Wright-Patterson Air Force Base, Ohio.

1. It is requested that TI 2140–169A[1] "Installation of Seats and Shoulder Harness in USAF aircraft" be cancelled.

2. The policy stated in subject TI has been incorporated into the HIAD[2] and is applicable to new production aircraft; therefore no reason exists for continuance of the TI as far as production aircraft are concerned.

3. In the procurement of "off-the-shelf" aircraft, the HIAD requirements should be considered in accordance with the policy outlined in APPI 70–262 dated 12 February 1953.

4. In regard to inservice aircraft, experience has shown the infeasibility of implementing the policy outlined in the TI. This has resulted in repeated waivers of the stated requirements by this headquarters. As it is felt that the impracticability of retrofitting existing inservice aircraft in accordance with the TI has now been fully determined, continuance of the TI is not considered warranted.

By order of the Chief of Staff:

JOHN D. HOWE,
Brigadier General, USAF,
Director, Maintenance-Engineering,
Office, Deputy Chief of Staff, Materiel.

Paragraph 3 of the letter of May 14, 1954, referred to a policy established on February 12, 1953, by the United States Air Force. The policy had reference to the procurement of "off-the-shelf" aircraft and allowed deviations in specifications for this type aircraft. An "off-the-shelf" aircraft is a commercial-type plane which is purchased by the Air Force. Such an aircraft is built to civil air worthiness

[1] This is a technical instruction which provides for strength requirements for seats which will be strong enough for a 250-pound passenger.
[2] Handbook of Instructions for Aircraft Designers.

standards rather than military specifications, and modified as necessary to adapt it to the military task. Evidently, Air Force Headquarters believed the C–118 to be an "off-the-shelf" aircraft. All C–118's, however, did not fall into this category because of certain changes made in the manufacture of the plane for the military. The primary change was to strengthen the floor.

MATS interpreted all this as not affording sufficient authority to accomplish its objective, which involved procurement of lighter seats for all C–118 and C–121 aircraft built to military specifications. Accordingly, it sent a letter request, on September 14, 1954, again requesting specific authority for the deviation from specifications. This request read as follows:

MILITARY AIR TRANSPORT SERVICE,
ANDREWS AIR FORCE BASE,
Washington 25, D. C.

Subject: Passenger seat design specification MIL–S–5797.
To: Director of Requirements, Headquarters, USAF, Washington 25, D. C.

1. Commercial air carriers have been utilizing CAA-approved 9G seats that are much superior to the 16G seats called for in MATS aircraft. I am convinced, and General Powers of Air Research and Development Command agrees, that the 16G requirement for seats in passenger configured aircraft is no longer necessary or desired. Women, children, aged dependents, military and civilian personnel are riding our transports daily on long over-ocean routes and are entitled to a comfortable seat.

2. I strongly recommend revising the requirements of specification MIL–S–5797 in its application to MATS to permit the use of comfortable, commercially available 9G passenger seats. I would appreciate early action and advice on this matter.

E. MOORE,
Major General, USAF, Chief of Staff
(For and in the absence of Joseph Smith, lieutenant general, USAF, commander).

On September 14, 1954, MATS received a telephone call from the Office of Requirements, USAF, and was informed that approval for deviation from specifications would be forthcoming. Confirmation of this was to be made by letter from USAF Headquarters.

III. NEGOTIATION AND TESTING

Prior to this time, however, in August 1954, as a result of the earlier communication from MATS Headquarters, the Atlantic Division addressed letters to manufacturers of passenger seats, inviting submission of sample seats for field testing and evaluation.

The companies solicited were as follows:

(*a*) For high-density seats (narrow seat):
1. The Aerotherm Corp., Bantam, Conn.
2. Aerosmith, Inc., Miami, Fla.
3. Flight Equipment & Engineering Corp., Miami, Fla.
4. Hardman Tool & Equipment Co., Los Angeles, Calif.

(*b*) For low-density seats (wide seat):
1. Aerosmith, Inc., Miami, Fla.
2. Flight Equipment & Engineering Corp., Miami, Fla.
3. Hardman Tool & Equipment Co., Los Angeles, Calif.
4. Transport Equipment Co., Burbank, Calif.

In addition to the above-named companies, the Weber Aircraft Corp. of Burbank, Calif., also submitted seats for testing.

All manufacturers who were interested in submitting samples were instructed to contact the 1600th Air Transport Group for shipping

instructions and for any other information requested.[3] The target date set for the receipt of the sample seats at Westover Air Force Base was September 10, 1954. The letter also set forth the specifications to which the manufacturers had to conform, which deviated from standard military specifications and were not approved for procurement.

The companies were also informed that if, during the service tests, the seats were damaged beyond that which would be normally expected by fair wear and tear the United States Government would reimburse the companies for the actual cost of repair of the seats. It was also specified that the liability of the Government was to commence when the seats were turned over to the Air Force activity at Westover Air Force Base and was to terminate when the Air Force released the seats to a commercial carrier for return to the companies.

Each company was expressly cautioned that the furnishing of a sample seat for testing would not guarantee ultimate procurement from the company. It is significant, however, to point out that the letter also informed each manufacturer that data obtained from service test would be forwarded to MATS Headquarters and subsequently to AMC (Dayton, Ohio) for further procurement action.

On September 21, 1954, the companies were instructed by telegram that they were to have their seats on location at Westover by September 23, as the tests were to be conducted beginning on that date.

On September 27, 1954, the following letter was received from Headquarters USAF, which again left MATS without the specific authority requested and with an ambiguous indication that such authority probably would be forthcoming:

[First endorsement]

B/ltr MATS dated September 14, 1954, subject: Passenger seat design specification MIL–S–5797
AFDRQ–SC/M

From: Department of the Air Force, Headquarters USAF, Washington 25, D. C.
To: Commander, Military Air Transport Service, Andrews Air Force Base, Washington 25, D. C.

SEPTEMBER 27, 1954.

1. It is the policy of this headquarters to provide reasonable comfort along with the maximum safety in the design and installation of passenger seats for transport aircraft. This policy has resulted in specification MIL–S–5797, which covers 16G seats, and in paragraph 23.260 of the HIAD, which states that 16G passenger seats will be utilized in all transport aircraft designed for the USAF.

2. Commercially designed transport aircraft, procured off-the-shelf for the USAF and MATS are normally required to meet only CAA strength criteria, which currently specify 9G forward strength in the design and installation of passenger seats.

3. It is realized that, to date, passenger seats developed under specification MIL–S–5797 are not as comfortable, nor perhaps as light in weight as commercial seats designed toward less stringent requirements. It is also agreed that present-day aircraft in MATS scheduled operations are afforded adequate safety along with economy, efficiency, and comfort in the utilization of 9G CAA–approved seats. Headquarters AMC and ARDC have therefore been advised that the 16G passenger-seat requirement, along with the usually necessary structural modifications, should not be imposed upon in-service or off-the-shelf production aircraft of your command. Future aircraft, designed for higher performance,

[3] See exhibits A and B.

should provide adequate strength to accommodate the added safety afforded by the 16G seat. Efforts will continue toward development of a suitable passenger seat to provide maximum safety, comfort, and efficiency afforded by the structural design of those aircraft.

By order of the Chief of Staff:

GEORGE E. PRICE,
Brigadier General, USAF, Director of Requirements, DCS/D.

Thus, as of September 27, although procurement activity had been initiated all necessary authority had not been obtained from Air Force Headquarters.

Seats for testing were not supplied by all six of the companies contacted. Of the six, only those of Aerosmith, Flight Equipment, Hardman Tool, and Transport Equipment were actually tested. The test was completed October 25, 1954. An evaluation report was prepared by the Atlantic Division and forwarded to MATS Headquarters.[4] The report indicated that there were 2 companies whose seats were to be selected, 1 for a high-density (narrow) seat and 1 for a low-density (wide) seat. Further action by MATS was deferred until receipt of the specific authority from Air Force Headquarters for the procurement was obtained.

IV. FRUSTRATION AND TERMINATION

Final notice of the ultimate frustration of this intended procurement came about as a result of a specific inquiry in connection with the procurement of new C–121 transports in November 1954. At this time, MATS requested specific authority to have the planes delivered without passenger seats, so that the new type seats could be installed. A telegram was dispatched to Headquarters, USAF, which in substance contained the following:

MARD 26LO
NOVEMBER 26, 1954.

To Director, Research and Development, USAF, Headquarters:

Reference first endorsement to MATS letter dated September 14. Subject: Passenger-seat design specification MIL–specifications–5797. Request confirmation that reference letter authorizes installation of 9G seats in C–121C aircraft with Navy specification 16G floors. MATS' commanding officer's intent is to initiate requirement for a development of suitable 9G seats. Request advice earliest.

Since this telegram from MATS made specific reference to its initial written inquiry of September 14, 1954, for authority to deviate from existing seat specifications, the reply from USAF Headquarters not only related to the procurement of C–121 transports, but to the overall seat procurement authority request as well. That letter, dated December 22, 1954, was as follows:

DEPARTMENT OF THE AIR FORCE,
HEADQUARTERS, UNITED STATES AIR FORCE,
Washington 25, D. C., December 22, 1954.

Subject: Passenger seats in Air Force airplanes.
To: Commander, Military Air Transport Service, Andrews Air Force Base, Washington 25, D. C.

1. Reference is made to your TWX MAORD 26–L–01, dated November 26, 1954.

2. The correspondence referenced in your message does not authorize the substitution of seats of lesser strength than those for which the structure was designed. Off-the-shelf and in-service aircraft will have installed passenger seats compatible

[4] See exhibit C.

with the airplane structure but strength need not be greater than that currently specified in the Handbook of Instructions for Aircraft Designers (HIAD). The C–118A's assigned and the C–121C's to be assigned to MATS are designed with structure adequate to receive seats meeting specifications MIL–S–5797 (cargo aircraft folding 2-passenger seats) or MIL–S–7877A (cabin folding passenger seats).

3. This headquarters, in the interest of safety, does not favorably consider reducing the strength of passenger seats below the previously established requirement for crash protection. ARDC has been instructed to improve the comfort of seats procured to specification MIL–S–5797 to equal that of commercial types, but at no sacrifice of strength. ARDC has further been instructed to revise MIL–S–5797 to reflect a 200-pound passenger as currently specified in the HIAD rather than a 250-pound passenger as specified in TI–2140–169A which was canceled May 14, 1954. Strength and comfort are not incompatible requirements.

4. While this headquarters has for reasons of economy rejected the principle of modifying old aircraft to the new strength requirements, there is no intention of approving reduced strength seats for modern aircraft with structure adequate to meet specification seat strength requirements. The fact that MATS is presently operating such aircraft with seats below the established strength requirements is a matter of concern to this headquarters.

By order of the Chief of Staff:

B. S. KELSEY,
Brigadier General, USAF, Deputy Director of Research and Development, Office, Deputy Chief of Staff, Development.

The above letter, it will be noticed, came not from the Office of the Directorate of Requirements, USAF Headquarters, as had previous communications but from the Office of the Directorate of Research and Development. Its complete reversal, and this time in positive and unmistakable terms, of the earlier position of encouragement to MATS in its proposed procurement of lighter and more comfortable passenger seats reflects a lack of coordination and planning within Air Force Headquarters itself. In any event, the letter of December 22 effectively terminated the abortive procurement of new passenger seats which had been initiated by MATS in July.

Unfortunately, notice of MATS' lack of authority for this procurement came long after the manufacturers and MATS had expended much time and money in the preparation and testing of sample passenger seats.

Thus, no procurement was made then, and the best information available to the subcommittee indicates that none has been made to this time.

CONCLUSIONS

On the basis of the foregoing, it is concluded that:

1. Although MATS was clearly encouraged to believe that it would receive authority to install new passenger seats by ambiguous communications from USAF Headquarters, it is clear from its own conduct that it never operated under the assumption that it had such authority, when procurement activity was initiated.

2. This procurement should not have been set in motion prior to a positive and specific determination that a deviation from existing specifications was permissible.

3. It is evident that there existed a lack of proper planning, coordination, and clear-channeled communication between the Military Air Transport Service Headquarters and the Air Force Headquarters. From the record it would also appear that an inexcusable absence of coordination existed between the Office of Requirements and the

Office of Research and Development in the Department of the Air Force Headquarters.

4. The directive issued in the letter of December 22, 1954, from Air Force Headquarters apparently could and should have been transmitted to MATS Headquarters in August, when first inquiry was made, or at least substantially earlier than December 22.

5. If the negotiations had been properly handled, unwarranted accumulation of cost to, and probable resentment by, the seat manufacturers could have been avoided. The subcommittee takes no position on whether the procurement of new aircraft passenger seats is or is not desirable. It merely notes that there is evidently in existence today a still unresolved conflict over such desirability as between Air Force Headquarters and MATS Headquarters which operates such passenger planes.

RECOMMENDATIONS

It is recommended that:

1. Except in the case of basic research and initial development contracts, the Secretary of the Air Force advise all commands that the solicitation of sample items for field testing shall not take place prior to resolving all questions of specifications and standards affecting the authority for such procurement.

2. The Secretary undertake to ascertain the cause for the apparent conflict in the directives issued by the Office of Requirements and the Office of Research and Development, Headquarters USAF, as well as for the clear lack of coordination between these Offices which is reflected by the record of this investigation.

3. The Secretary report the results of his investigation to the subcommittee at the earliest opportunity and advise it what action has been taken to prevent recurrences of such unauthorized procurement negotiations.

EXHIBITS

EXHIBIT A

ATLANTIC DIVISION,
MILITARY AIR TRANSPORT SERVICE,
UNITED STATES AIR FORCE,
Westover Air Force Base, Mass., August 25, 1954.

THE AEROTHERM CORP.,
Bantam, Conn.

GENTLEMEN: The 1600th Air Transport Group, Westover Air Force Base, Mass., has been designated by Headquarters, Military Air Transport Service (MATS), and the responsible Air Materiel Command (AMC) depot as the service test agency for a model of high-density seats manufactured by your company. The service test will begin on September 10, 1954, for a period of approximately 30 days. The seat will be placed aboard a C–118 type aircraft making scheduled passenger and/or cargo flights to and from Europe. The passengers will fill out a seat evaluation form at the end of each flight. The seat evaluation forms plus the Atlantic Division's staff evaluation of seat comfort, maintenance factors, cost, delivery dates, and eye appeal will determine the type seat selected. All data obtained from the service test will be forwarded to MATS Headquarters and, subsequently, to AMC for further procurement action.

The high-density seat to be selected must conform to the following specifications:

1. Stressed for 9G fore and aft.
2. Weight of triple high-density seat not to exceed 75 pounds, double, not to exceed 50 pounds.
3. Floor to wall folding; height of 3-place seats in folding position not to exceed 59½ inches above the floor.
4. Provisions to store a life vest in the back of seat. Life vest to be fully protected.
5. Receptacles in armrest for in-flight meal tray.
6. The locking mechanism must permit positive locking action in all positions.
7. The ashtray to be positioned on the top of the armrest or to be in such a position that the passenger's clothing will not be torn while entering or leaving the seat when the ashtray is left open.
8. Minimum of 12 inches of space under rear of seat to allow passenger leg comfort (preferable).
9. One removable armrest on the three-place seat (preferable).
10. Removable center armrest on two-place seat (preferable).
11. Inner and outer armrest to be paneled (aluminum base preferred).
12. Armrest to be at least 8 inches above seat cushion.
13. Prototype of seat to be available on/before September 10, 1954.
14. All seats to fit a 20 by 20 grid pattern and equipped with Brownline fittings.

If it is your desire to furnish a seat for this service test, Captain Poltrock, Maintenance Section, 1600th Air Transport Group, Westover Air Force, Mass., Telephone Chicopee 36411, extension 637, may be contacted for shipping instructions and/or any other information required.

When the service test is completed, the seat will be returned to your company, shipping costs paid by the United States Government. In case the seat is damaged beyond that which would normally be expected by fair wear and tear incurred during the service test, the United States Government will reimburse your company at actual cost of repair of the seat. The liability to commence when the seat is turned over to the Air Force activity at Westover Air Force Base and will terminate when the Air Force activity at Westover Air Force Base turns the seat over to the commercial carrier for transportation back to your company.

It should be expressly understood that your furnishing of this prototype to the Government, for the period specified above and under the conditions herein contained, in no way guarantees ultimate procurement from your company.

Sincerely,

_____.

Duplicate copies of this letter forwarded to Aerosmith, Inc., Miami, Fla.; Flight Equipment & Engineering Corp., Miami, Fla.; Hardman Tool & Equipment Co., Los Angeles, Calif.

EXHIBIT B

ATLANTIC DIVISION,
MILITARY AIR TRANSPORT SERVICE,
UNITED STATES AIR FORCE,
Westover Air Force Base, Mass., August 24, 1954.

AEROSMITH, INC.,
Miami, Fla.

GENTLEMEN: The 1600th Air Transport Group, Westover Air Force Base, Mass., has been designated by Headquarters, Military Air Transport Service (MATS), and the responsible Air Material Command (AMC) depot as the service test agency for a model of the low-density seat manufactured by your company. The service test will begin on September 10, 1954, for a period of approximately 30 days. The seat will be placed aboard a C–118 type aircraft making scheduled passenger flights to and from Europe. The passengers will fill out a seat evaluation form at the end of each flight. The seat evaluation forms plus the Atlantic Division's staff evaluation of seat comfort, maintenance factors, cost, delivery dates, and eye appeal will determine the type of seat selected. After the selection is completed, all data obtained from the service test will be forwarded to MATS Headquarters and, subsequently, to AMC for further procurement action.

The low-density seat to be selected must conform to the following specifications.

1. Stressed for 9G fore and aft.
2. The weight of a double seat will not exceed 70 pounds.
3. The locking mechanism must permit positive locking action in all positions.
4. The seat will have receptacles in the armrests for in-flight meal tray (preferable).
5. Provisions will be made for the storage of a life vest in back of seat; life vest to be fully protected.
6. Ashtrays to be positioned to prevent tearing of clothing when passengers are leaving or entering seats in the event trays are left open (preferable).
7. Minimum of 12 inches of space under rear of seat to allow passenger leg comfort (preferable).
8. Prototype to be available on/before September 10, 1954.
9. All seats to fit a 20-by-20 grid pattern and equipped with Brownline fittings.

If it is your desire to furnish a seat for this service test, Captain Poltrock, Maintenance Section, 1600th Air Transport Group, Westover Air Force Base, Mass., telephone Chicopee 36411, extension 637, may be contacted for shipping instructions and for any other information required.

When the service test is completed, the seat will be returned to your company, shipping costs paid by the United States Government. In case the seat is damaged beyond that which would normally be expected by fair wear and tear incurred during the service test, the United States Government will reimburse your company at actual cost of repair of the seat. This liability will commence when the seat is turned over to the Air Force activity at Westover Air Force Base, and will terminate when the Air Force activity at Westover Air Force Base turns the seat over to the commercial carrier for transportation back to your company.

It should be expressly understood that your furnishing of this prototype to the Government, for the period specified above and under the conditions herein contained, in no way guarantees ultimate procurement from your company.

Sincerely,

_____.

Duplicate copies of this letter forwarded to Flight Equipment & Engineering Corp., Miami, Fla.; Hardman Tool & Engineering Co., Los Angeles, Calif.; Transport Equipment Co., Burbank, Calif.

EXHIBIT C

[Third endorsement]

B/L from 1600th ATG, MATS, subject: Aircraft seats (October 4, 1954).
From: Headquarters Division, MATS, Westover AFB, Mass.
To: Comdr, Military Air Transport Service, USAF, Washington 25, D. C.

OCTOBER 26, 1954.

1. This headquarters concurs with the findings of the 30th ATS and the 1600th ATG.

2. The following comments are made concerning the low-density seat, model W–211, manufactured by the Aerosmith, Inc.:

(*a*) The right and left seats are not interchangeable. It will be necessary to procure the number of seats required for each individual side. It is felt that this feature is desirable due to the additional aisle space obtained by placing the seat closer to the cabin wall. It is not anticipated that these seats will be removed except for seat or aircraft maintenance.

(*b*) The lock-releasing mechanism in all positive lock-type seats was not completely satisfactory as presently installed. This is due to the pressure required to slide the release control knob that actuates the reclining mechanism. It is recommended that a larger knob or release handle be installed to eliminate this deficiency.

(*c*) The planned configuration of the C–118 type aircraft to be equipped with low density seats required 10 double seats on the left side and 14 double seats on the right side. It is recommended that 2 left and 3 right double seats be procured as spares per C–118 aircraft to allow for base and depot level repairs.

3. The following comments are made concerning the high density seats, model Y–A–22 and Y–A–32, manufactured by the Flight Equipment & Engineering Co.

(*a*) The high-density seat submitted met the specifications as written and will fit a 20- by 20-inch grid pattern in the C–118 type aircraft. A minor modification will be required for this seat when it is installed on the variable grid pattern of the C–121 type aircraft. This problem was discussed with the plant engineer and he verified that the seats could be delivered modified to fit the C–121 type aircraft with no extra cost to the Government.

(*b*) It is required that a heavier and stronger type plastic or artificial leather be used to cover the armrests.

(*c*) In order to allow more individual seat room in this high-density-type seat, a triangular armrest is recommended to replace the square-shaped arm that is presently a component of the Y–A–22 and Y–A–32 seats.

(*d*) At the present time, the high-density seat configuration for the C–121 is unknown to this headquarters. The recommended high-density seat configuration for the C–118 type aircraft is 10 triple seats on the left side and 16 double seats on the right side and 2 doubles in the crew compartment. It is further recommended that 1 spare seat be procured per 10 installed to allow for base and depot level repairs.

4. For further information, 2 brochures, with factory blueprints and specifications, are attached as Enclosures 3 and 4. This correspondence and enclosures are being hand carried to your headquarters by Capt. Conrad R. Payne.

J. G. HOPKINS,
Brigadier General, USAF, Deputy Commander
(For the Commander).

[Second endorsement]

Hq, 1600th ATG, Hv, File MAT, subject: Aircraft seats ATG (October 4, 1954).
From: HQ, 1600th Air Transport Group, HV, ATLD, MATS, Westover AFB, Mass.
To: Commander, Atlantic Division, MATS.

OCTOBER 25, 1954.

1. The report on final evaluation of high- and low-density passenger seats submitted by the 30th AirTransRon as first endorsement to this letter is favorably considered.

2. Seat specimens were furnished by four manufacturers as follows:

(*a*) Aerosmith, Inc. (high and low density).
(*b*) Flight Equipment & Engineering Corp. (high and low density).
(*c*) Hardman Tool & Engineering Co. (high and low density).
(*d*) Transport Equipment Co. (low density).

Seats submitted by 2 manufacturers were not considered due to; Weber Co. delivering the seats too late to be entered into the service test; the Aerotherm Co. seat did not meet the specifications as outlined in the original letter submitted to the manufacturers, i. e., they did not submit a 3-place, high-density seat which is the critical seat.

3. The original service test was to extend for a 30-day period, however, MATS message MAORD 13K–150 was received which made it mandatory that the service test be completed by October 25; thus shortening the service test period by 9 days. It is felt, however, that a true evaluation was made as evidenced by enclosures 1 and 2.

4. The cost of each seat was not made known to personnel performing the service test and, consequently, was not a factor in the final evaluation.

THOMAS W. GELL,
Colonel, USAF, Commander.

[First endorsement]

Hqs, 1600th AirTransGru, WAFB, Mass., subj: Aircraft seats MTN–4 (October 4, 1954).
From: 30th Air Transport Squadron (M), 1600th AirTransGru, Westover AFB, Mass.
To: Commander, 1600th AirTransGru, ATLD, MATS, Westover AFB, Mass.

OCTOBER 21, 1954.

1. On October 19, 1954, this squadron concluded the service test as required by basic letter.

2. Attached as enclosures are the passenger reaction forms with a cover note pointing out pertinent factors used to compare the desirability of one seat over another.

3. A panel of officers and airmen conducted the final evaluation; this panel consisted of:

Project officer, 30th ATS
Commander, 30th ATS
Operations officer, 30th ATS
Assistant operations officer, 30th ATS
Flight surgeon, 1600th USAF Hospital
Maintenance officer, 30th ATS
Flight attendant supervisor, 30th ATS
Assistant flight attendant supervisor, 30th ATS

4. The criteria utilized in selecting the low-density seat was:

(*a*) Comfort
(*b*) Appearance
(*c*) Passenger reaction forms

In selecting the high-density seat, the following criteria, in order of importance, was used:

(*a*) Weight
(*b*) Ruggedness of design
(*c*) Ease of maintenance
(*d*) Passenger reaction forms
(*e*) Passenger comfort
(*f*) General utility

5. This panel selected the Aerosmith, Inc., seat, model W–211, as the most desirable low-density seat. However, it is recommended that the following modifications be incorporated in the production models:

(*a*) The headroll be reduced to compare with that incorporated in their model W–210.
(*b*) Footrests be provided.
(*c*) That serving trays be furnished with each individual seat.
(*d*) That provisions be incorporated for the stowage of AF style exposure suits and life jackets under each seat.
(*e*) Airline-style snap-on safety belts be furnished with each individual seat.
(*f*) That snaps be installed on the headroll for airline type headrest covers.

6. The Y–A–22 2-passenger and Y–A–32 3-passenger high-density seats manufactured by Flight Equipment & Engineering Co. were selected as the most suitable. It is recommended that the following modifications and/or additions be made if this seat is purchased:

(*a*) An adjustable footrest for each individual seat.
(*b*) Facilities for the stowage of the AF exposure suit under the seat.
(*c*) Serving trays for each seat position.
(*d*) Snaps on the headroll for use of airline-type headrest covers.
(*e*) That snagproof-type zippers be used on the large pocket at the seat back.
(*f*) Airline-type snap-on safety belts be furnished.

6. The following general recommendations are submitted for consideration:

(*a*) The manufacturer be required to furnish a listing of all hardware not standard to AF specifications, with recommendations for provisioning. It is further recommended that this listing be incorporated in the Federal Supply Stock Lists and published in a T. O. for maintenance and supply use.

(*b*) Spare seat covers be included in the seat contract. Fifty-five each for the low-density seats and 75 each for the high-density. This will provide sufficient spares to have at least one set in the cleaners at all times. It is further recommended that a suitable amount of each fabric used in the seats (including Vinyl plastic) be provisioned to be stocked at the support base to facilitate repairs.

(*c*) Appropriate spare seats be procured for each position to be used as rotable spares. These seats should be stocked by each field maintenance facility supporting operations using these seats.

7. The panel favorably considered the type of material installed on the Aerosmith model, W210 seat which is of light brown, two-tone tweed. It was believed that this particular material would enhance the appearance of the aircraft, blend well with any color scheme, and not show a soiled condition readily.

8. It is believed that the present policy of allowing the operator to be a party in evaluating equipment he will be required to use is a very desirable approach. Should further tests, demonstrations or conferences be required, this organization would be most happy to supply the necessary facilities and/or personnel.

C. O. WILLIAMS, Jr.,
Lieutenant Colonel, USAF, Commander.

1600TH AIR TRANSPORT GROUP,
ATLANTIC DIVISION, MATS,
Westover Air Force Base, Mass., October 4, 1954.

Subject: Aircraft seats.

To COMMANDER, 30TH ATRON:

1. The following message from Hq ATLD is quoted for your information:

"MSD–M 174. This hq has contacted several acft seat mfrs to sup high and low density seats to your gru for svc test on C–118 acft. The seat mfrs have been instr to meet certain specs as outlined in info cy of ltr to the different companies that has been furn your hq. All competitors have been instructed to have seats in place prior to 23 Sep. Desire that the 1600th ATG perform svc test and rept compl findings to this hq on/before 30 Oct. Recm seats be placed aboard regular sked C–118 pax trips and pax be req to fill out evaluation forms on the seats. Evaluation forms in conjunction w/comments of the ATG and Sq Staff should be used to select seat best fitted to the MATS opr. Final evaluation w/b in compl detail and incl method and reason for selection."

2. The 30th ATRon has been designated by this headquarters to perform the seat service test. Necessary coordination will be obtained through Capt. W. K. Poltrock, 1600th ATGMAT, ext. 681.

3. Various competitors have submitted seat samples as follows:

(*a*) Low density:
Hardman Tool & Engineering Co., 1 double.
Aerosmith, Inc., 2 doubles.
Transport Equipment Co., 1 double.
Flight Equipment & Engineering Co., 1 double.

(*b*) High density:
Hardman Tool & Engineering Co. (1 set) 3/2.
Aerosmith, Inc. (1 set) 3/2.
Flight Equipment & Engineering Co. (3 sets) 3/2.
Aerotherm Corp. (1 set) 0/2.

4. Inasmuch as the service test is to be concluded on October 30, it is requested that the matter be handled expeditiously in order to obtain as many passenger comments as is possible. Generally, the following instructions will apply:

(*a*) Passengers seated in the service test seat will fill out the comment form already provided.

(*b*) Flight attendants will add appropriate comments in the space provided on the form.

(*c*) Maintenance personnel will take cognizance of characteristics which either contribute to or detract from a particular seat's acceptability.

(*d*) Squadron Staff personnel will make appropriate observations as frequently as possible.

5. At the conclusion of the service test a complete and comprehensive report covering each set of seats will be forwarded to this headquarters. The report will include, but not be limited to, the following items:

(*a*) Completed passenger seat comment forms.

(*b*) Contributing factors which establish the superiority of one seat over another from a passenger standpoint.

(*c*) Contributing factors which establish the superiority of one seat over another from a maintenance standpoint.

(*d*) General findings.

6. The report will be forwarded to this headquarters no later than October 27, 1954.

By order of the Commander:

MARY L. CROSBY,
1/Lt, USAF, Adj.

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